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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,391	01/22/2004	Tian Bu	Bu 1-2-28	4485

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EXAMINER	
GOLD, AVI M	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/762,391	BU ET AL.	
	Examiner	Art Unit	
	AVI GOLD	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to the amendment filed January 22, 2004. Claims 1-27 are pending.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 22 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 22 teaches a system for mitigating against a denial of service attack. Page 16, lines 11-18 of the specification reads "each probing system, ..., could also be implemented in hardware or any combination of hardware, firmware, logic and software." The **idea** that the system can be embodied fully in software makes the system, software per se and non-statutory.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 4-22, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al., U.S. Patent No. 6,192,054, further in view of Osterman, U.S. Patent Application Publication No. 2005/0108331.

Chan teaches the invention substantially as claimed including an acceleration of data network traffic between two nodes through the elimination of node latency by bypassing nodes which are not participating in communication (see abstract).

As to claim1, Chan teaches an overlay network for maintaining traffic flow between a client and a server during a denial of service attack, comprising: a set of overlay nodes, coupled between the client and the server, wherein each overlay node comprises:

a ranking module configured to rank the overlay nodes based on a performance metric, wherein an overlay node with a higher-ranking indicates that the overlay node has better performance for transferring traffic to the server than overlay nodes with lower-rankings (col. 1, line 57 – col. 2, line 14, Chan discloses ranking of nodes on a network based on performance); and

a probing module configured to probe a portion of the overlay nodes during probing intervals (col. 4, lines 10-29, col. 13, lines 6-32, Chan discloses probing nodes).

Chan does not explicitly teach probing higher-ranking nodes more frequently than nodes with lower-rankings.

However, Osterman teaches architecture that employs unicast and multicast messaging to detect network devices (see abstract). Osterman teaches the use of more frequent statusing of higher ranked nodes (paragraph 79).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Chan in view of Osterman to probe higher-ranking nodes more frequently than nodes with lower-rankings. One would be motivated to do so because it will receive more up to date information on nodes that are better performing.

Regarding claim 2, Chan teaches the overlay network as recited in claim 1, wherein each overlay node further comprises a path selection module, configured to dynamically select an overlay node with a highest-rankings to be included as part of a pathway for transferring traffic to the server (col. 13, lines 6-32, Chan discloses the highest ranking node dynamically included in the network data path).

Regarding claim 4, Chan teaches the overlay network as recited in claim 1, further comprising one or more target nodes, configured to transfer the traffic from one or more of the overlay nodes directly to the server, the one or more target nodes having exclusive knowledge of an identity for the server (col. 7, lines 38-67, Chan discloses nodes sending data to a server).

Regarding claim 5, Chan teaches the overlay network as recited in claim 1, wherein each overlay node is virtually connected to each other (col. 1, lines 51-56, Chan discloses all the nodes connected to one another).

Regarding claim 6, Chan teaches the overlay network as recited in claim 1, wherein the performance metric includes at least one of: available bandwidth, latency, loss rate, and jitter; and wherein an overlay node with a higher-ranking indicates that the overlay node has better performance for transferring traffic to the server than overlay nodes with lower-rankings, the better performance including at least one of: more available bandwidth, less jitter, lower latency, and less packet loss (col. 1, lines 8-14, col. 1, line 51 – col. 2, line 14, Chan discloses the higher ranking nodes having lower latency).

Regarding claim 7, Chan teaches the overlay network as recited in claim 1, wherein the ranking module is further configured to determine whether the portion of overlay nodes with higher-rankings continue to have better performance for transferring traffic to the server than one or more of the overlay nodes with lower-rankings after a probing interval (col. 13-15).

Regarding claim 8, Chan teaches the overlay network as recited in claim 1, wherein the ranking module is configured to demote the rankings of the portion of overlay nodes with higher-rankings to lower-rankings if the portion of overlay nodes with

higher-rankings have worse performance for transferring traffic to the server than one or more of the overlay nodes with lower-rankings after a probing interval (col. 13-15).

Regarding claim 9, Chan teaches the overlay network as recited in claim 1, wherein the traffic is data (col. 1, lines 8-14).

Regarding claim 17, Chan teaches the method as recited in claim 10, further comprising determining whether the portion of overlay nodes with higher-rankings continue to have better performance for transferring traffic to a target than one or more of the overlay nodes with lower-rankings after a probing interval; and promoting the rankings of one or more of the overlay nodes with lower-rankings to higher-rankings, if the portion of overlay nodes with higher-rankings have worse performance for transferring traffic to a target than one or more of the overlay nodes with lower-rankings (col. 13-15).

Claims 10-16, 18-22, and 27 do not teach or define any new limitations above claims 1, 2, 4-9, and 17 and therefore are rejected for similar reasons.

4. Claims 3 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan and Osterman further in view of Corrigan et al., U.S. Patent Publication No. 2004/0148357.

Chan teaches the invention substantially as claimed including an acceleration of data network traffic between two nodes through the elimination of node latency by bypassing nodes which are not participating in communication (see abstract). Osterman teaches the invention substantially as claimed including architecture that employs unicast and multicast messaging to detect network devices (see abstract).

As to claim 3, Chan and Osterman teach the method of claim 1.

Chan and Osterman do not explicitly teach an access node, configured to authenticate traffic directed to the server from the client, and forward authenticated traffic to one or more of the overlay nodes.

However, Corrigan teaches a messaging gateway for use by mobile networks (see abstract). Corrigan teaches the use of validation nodes (paragraph 51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Chan and Osterman in view of Corrigan to use an access node, configured to authenticate traffic directed to the server from the client, and forward authenticated traffic to one or more of the overlay nodes. One would be motivated to do so because it guarantees confidentiality and integrity of all traffic.

Regarding claim 23, Chan and Osterman teach an overlay network to mitigate a denial of service attack, comprising: target nodes configured to transfer the traffic previously authenticated by the access nodes to the server; and overlay nodes, coupled between the access nodes and the target nodes, configured to route the traffic from the

access nodes to the target nodes by selecting a best end-to-end path between the client and the server based in accordance with at least one performance metric (col. 1, line 57 – col. 2, line 14, col. 4, lines 10-29, col. 13-15).

Chan and Osterman do not explicitly teach access nodes configured to authenticate traffic directed to the server from the client.

However, Corrigan teaches the use of validation nodes (paragraph 51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Chan and Osterman in view of Corrigan to use access nodes configured to authenticate traffic directed to the server from the client. One would be motivated to do so because it guarantees confidentiality and integrity of all traffic.

Regarding claim 24, Chan and Osterman teach the overlay network as recited in claim 23, wherein each overlay node is configured to dynamically select, a best target node for accessing the server and a best path to reach that target node (col. 13-15).

Regarding claim 25, Chan and Osterman teach the overlay network as recited in claim 24, wherein the best path is selected via a best next hop measured in terms of the at least one performance metric (col. 13-15).

Regarding claim 26, Chan and Osterman teach the overlay network as recited in claim 23, wherein each overlay node comprises: a ranking module configured to rank the overlay nodes based on the performance metric, wherein an overlay node with a

higher-ranking indicates that the overlay node has better performance for transferring traffic to one of the target nodes than overlay nodes with lower-rankings; and a probing module configured to probe a portion of the overlay nodes with higher-rankings more frequently than overlay nodes with lower-rankings during probing intervals (col. 1, line 57 – col. 2, line 14, col. 4, lines 10-29, col. 13-15).

Response to Arguments

5. Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 5,539,659 to McKee et al., because it discloses ranking of nodes.

U.S. Pat. No. 5,802,503 to Sansone, because it discloses nodes that are ranked and weighted.

U.S. Pat. Publication No. 2002/0002686 to Vange et al., because it discloses a method and system for overcoming denial of service attacks.

U.S. Pat. No. 7,185,077 to O'Toole et al., because it discloses performance metrics of a network and an overlay network of nodes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AVI GOLD whose telephone number is (571)272-4002. The examiner can normally be reached on M-F 8:00-5:30 (1st Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Avi Gold

Patent Examiner

Art Unit 2157

AMG

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